

## DECENTRALIZATION OF ENVIRONMENTAL, ECONOMIC DEVELOPMENT THROUGH GREEN TECHNOLOGY IN NORTH SUMATRA PROVINCE

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**Abstract:** Decentralization gives local governments the power to manage local issues such as resource management, public services, and also local infrastructure development. With the power of the local government, it can be said that the development of the area, is the authority of the local government. So development both in terms of the environment, the economy is also an important concern for local governments. Environmental development refers to efforts to improve the quality of the environment through various initiatives and policies that focus on sustainability, conservation of natural resources, and protection of ecosystems, as well as supporting green technologies such as waste treatment facilities, renewable energy systems, and eco-friendly transportation are all part of the local government's concern for the environment. Economic development can be done with private sector cooperation: Encourage cooperation between the government and the private sector in investing in green technology projects. This can take the form of public-private partnerships for renewable energy projects or sustainable natural resource management. Local governments should be sensitive to the needs of the community, with the vast natural resources in each region should be the initial capital for the development of people's lives by utilizing natural ecosystems and human resources with green technology.

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### INTRODUCTION

Decentralization is the process by which power, functions, or responsibilities that were previously concentrated in a single institution or government agency are distributed or transferred to other entities, such as local governments, non-governmental organizations, or local communities. The goal of decentralization is often to enhance efficiency, transparency, community participation, and accountability in decision-making. When it is transferred to the local government, it can be said that the authority is in the hands of the local officials. However, this does not mean that those in power in a region can arbitrarily make changes in every area without considering the impact on their community, such as the environment. The environment, such as the greenery in Medan city, is slowly starting to disappear. The artificial parks created to enhance green technology do not replace the greenery in Medan. Medan itself is the capital of North

Sumatra.

Green spaces are starting to disappear with the construction of high-rise buildings in North Sumatra. The decentralization carried out by the authorities is more focused on modern-scale development, so the development of the environment is shifted towards the skills of small and medium enterprises UMKM in creating products that can be sold to the community. Meanwhile, the community is starting to find it difficult to breathe fresh urban air. With the existing problems, actions taken by a group of people, irresponsible individuals, and institutions do not address what the community needs, especially fresh air from the environment. The comfort provided by the greenery growing along the streets, which creates shade, is gradually being eliminated by new buildings.

Certainly, this encourages those who care about the environment to participate in developing the environment as an economic resource through green initiatives. For UMKM, they have also harnessed nature for their creative product needs, such as ecoprint designs, organic vegetables, recycled packaging, and flour made from agricultural waste turned into tofu pulp flour, and many more.

Green technology is currently being socialized, promoted, and utilized by the government in every region. Especially in North Sumatra, which is known for its quite numerous home industries. However, with the numerous home industries in North Sumatra, many people feel uncomfortable with areas that produce processed goods, as waste and garbage create unpleasant odors. This is where the local government plays a role in ensuring that these home industries continue to operate despite the limitations. Speaking of green technology, green technology refers to the use of technology aimed at reducing negative impacts on the environment, promoting sustainability, and enhancing resource efficiency. It encompasses a range of innovations and practices across various sectors such as energy, transportation, agriculture, and industry.

Decentralized environmental development plays a crucial role in the management of natural resources and environmental sustainability. In North Sumatra, community empowerment has also been implemented and has taken place, but it hasn't always been successful. This is one of the main roles in assisting local governments to implement changes and develop regions by effectively utilizing the available natural environment

through green spaces. In this research, the researcher aims to examine the extent of the role of local governments that have been entrusted with the responsibility of developing the environment and the economy through green initiatives.

There are several very important reasons for the decentralization of environmental and economic development through green technology in North Sumatra that need attention, such as increasing community participation, addressing specific local issues, developing sustainable economies, fostering innovation and adaptation, and building environmentally friendly infrastructure. Overall, the decentralization of environmental and economic development through green technology in North Sumatra will help achieve a balance between economic growth and environmental sustainability, which in turn will improve the quality of life for local communities.

## **RESEARCH METHODS**

In this study, the research method used is qualitative. This method is used to explore the perceptions, experiences, attitudes, and meanings that individuals or groups assign to something, Moleong. (2018:8). To obtain accurate data, researchers use the Descriptive Approach to present data in the form of in-depth descriptions to the informant. In addition, there is also non-numeric data using in-depth interviews, observations, focus group discussions (FGD), and documents/literature as data sources. Then the flexibility in the methodology and research questions can be adjusted during the research process. Interpretative research emphasizes understanding the context and meaning of the data collected. The informants in this study consisted of 20 individuals from relevant agencies, namely the environment department, local government, and the Department of Industry of North Sumatra.

## **RESULTS AND DISCUSSION**

Decentralization is a concept in governance where power and authority are transferred from the central government to local governments. In a decentralized system, local governments have greater control over decision-making and resource management in their regions. (Rachmad dkk., 2023). The concept aims to increase community participation in decisions that affect their daily lives and support local-based development. The purpose of decentralization is to bring government decisions closer to the people, enable faster responses to local needs, and increase community

involvement and participation in the decision-making process (Simanjuntak, 2015). Decentralization also gives local governments greater control over the management of regional economic and social resources, such as budgets, education, healthcare services, and infrastructure. In practice, decentralization can involve the transfer of power, responsibilities, and financial resources from the central government to local governments, and it may also consider granting autonomy to local governments in making decisions regarding local issues. Decentralization can occur in various forms, including: fiscal decentralization (fund transfers to regions), administrative decentralization (delegation of authority to regions), and political decentralization (pemilihan kepala daerah). With the policies granted to the regions, it will enable local governments to have full authority over the development of areas in North Sumatra.

The decentralization of green plants in North Sumatra encompasses several important aspects that support sustainable agricultural development and plant protection. Here are some points related to decentralization in this context:

1. Empowering local farmers, where decentralization gives local communities greater power in decision-making regarding the types of crops to be planted, the farming methods used, and marketing strategies.
2. Access to resources, as decentralization allows farmers to easily access resources such as seeds, fertilizers, and agricultural techniques, thereby helping to increase the productivity of green crops.
3. Education and training that includes agricultural training and outreach programs can be conducted in the field to help farmers acquire relevant and practical knowledge about sustainable agricultural practices.
4. Natural Resource Management, decentralization allows local communities to be more involved in the management of natural resources, including the protection of green spaces and ecological sustainability.
5. Innovation and Diversification: Supporting local innovation and the diversification of plant species in agriculture can enhance food security and farmers' income.
6. Involvement of Local Government: Local governments can play an active role in developing policies that support the production of environmentally friendly crops, including incentives for sustainable farming practices.

By applying these principles of decentralization, it is hoped that North Sumatra can promote sustainable agriculture and improve the welfare of farmers through more effective management of green crops. There are several very important reasons for the decentralization of environmental and economic development through green technology in North Sumatra.

1. Increased community participation: Decentralization allows local communities to participate in decision-making processes related to the environment and economic development. By involving the community, green technology programs can become more relevant and responsive to local needs.
2. Addressing specific regional issues: Each region has its own environmental and economic challenges. Decentralization allows for a more targeted approach to addressing the specific issues faced by North Sumatra, such as deforestation, pollution, and economic instability.
3. Sustainable economic development: Environmentally friendly technology can promote more sustainable economic development through the efficient use of local resources. This allows us to enhance public interest while simultaneously protecting the environment.
4. Innovation and Adaptation: Decentralization allows regions to develop and adopt innovations tailored to local conditions. This will also foster healthy competition among regions to produce the best solutions in the development of environmentally friendly technology.
5. Climate Change Mitigation: The implementation of green technology at the local level can contribute to efforts to mitigate climate change. This is particularly important for North Sumatra Province, which may face negative impacts from climate change, such as increased flooding or other natural disasters.
6. Environmentally Friendly Infrastructure Development: Decentralization allows for better and more environmentally friendly infrastructure development, including renewable energy that can support economic growth while reducing negative impacts on the environment.
7. Empowering the Local Economy: A decentralization approach focused on green technology enables regions to create new jobs in sustainable sectors such as renewable energy and organic farming.

Overall, the decentralization of environmental and economic development through green technology in North Sumatra will help achieve a balance between economic growth and environmental sustainability, which in turn will enhance the quality of life for local communities.

In addition, regional leaders in North Sumatra are taking several strategic steps towards environmental and economic development through green technology, including: Developing Policies and Regulations: Creating policies that support the use of environmentally friendly technology, including encouraging businesses to adopt eco-friendly practices. Developing regulations to promote the conservation of natural resources and the reduction of carbon emissions. Building environmentally friendly infrastructure, such as efficient public transportation systems supported by renewable energy. Establishing waste treatment facilities using green technology to reduce environmental pollution.

Another strategy implemented as a step by local leaders is to organize educational programs about the benefits of green technology for the community and economic actors. Promoting training for local communities and small businesses to adopt sustainable practices. Organizing educational programs about the benefits of green technology for the community and economic actors. Promoting training for local communities and small businesses to implement sustainable practices that will ultimately bring about change for the surrounding community. Developing renewable energy sources such as solar, wind, and biomass to meet the energy needs of the region. Implementing renewable energy usage programs in government agencies and public facilities.

The community is also urged to protect forests and ecosystems to support biodiversity and mitigate climate change. Then create innovations and technologies by supporting the development of start-ups and small and medium enterprises with a focus on environmentally friendly technological innovations. The introduction of environmentally friendly technology solutions in the industrial sector, such as the use of efficient and eco-friendly equipment and machinery. Then, build a monitoring system to assess the environmental and economic impacts of the implementation of green technology. Conduct regular evaluations to improve the strategies implemented and

ensure sustainability.

With these measures in place, regional heads in North Sumatra can promote the development of a better environment while also boosting the local economy through the implementation of green technology. The change to green technology is greatly needed for the life of society. The factor of technological independence that is most likely to be implemented by the government is adequate technological infrastructure. (Internet, laboratory equipment), Human Resources (HR) (The number of master's and doctoral graduates in engineering is still lacking) Government support for research. (Technology research has priority, and the government tends to take a more application-oriented approach) this is necessary so that any shortcomings in regional development can be monitored through research.

## **CONCLUSION**

Decentralization will allow North Sumatra to manage its natural resources and environment more effectively and gain autonomy in decision-making related to environmentally friendly technologies. Then, the use of green technology contributes to the development of a green economy and encourages the growth of new sectors such as renewable energy, sustainable agriculture, and waste management that is efficient. The local government requests and believes that the use of green technology helps reduce greenhouse gas emissions and enhances community resilience to the impacts of climate change through more sustainable practices. In addition, if decentralization in the development of green technology opens up opportunities to raise public awareness about the importance of environmental protection and the benefits of green technology for everyday life. Thus, with the awareness of the positive contributions to preserve the natural ecosystem and to keep it safe from damage, what exists in the environment becomes more beneficial. The steps taken by the local government must be supported by the community. Overall, the decentralization of environmental and economic development through green technology in North Sumatra offers great potential to create a more sustainable and prosperous society by optimally utilizing local resources.

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